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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Shinji Takeda

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EXAMINER

KARIKARI, KWASI

ART UNIT

PAPER NUMBER

2617

NOTIFICATION DATE

DELIVERY MODE

12/24/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/782,929	Applicant(s) TAKEDA ET AL.	
	Examiner KWASI KARIKARI	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11,12,14,17,18 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11,12,14,17,18 and 25-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed on 09/11/2008 with respect to claims 11-12, 14, 17-18 and 25-31 in the remarks, have been considered but are moot in view of the new ground(s).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 11, 14, 17-18 and 25-31 are rejected under U.S.C. 103(a) as being unpatentable over Hulyalkar et al., (U.S. 6,751,196), (hereinafter Hulyalkar) in view of Cain (U.S. 20040029553 A1), (hereinafter, Cain).

Art Unit: 2617

Regarding claim 29-31, Hulyalkar discloses a multi-hop communication

system/method/station configured by a radio control station (= central controller; and controller could be any station, see col. 2, line 66- col. 3, line 25) and a plurality of radio stations (= stations/wireless terminals, see col. 3, lines 44-60), wherein, one radio station included in the plurality of the radio stations comprises:

- a control signal reception unit configured to receive a control signal for communication connection with the radio control station from the radio control station (= communication of among stations using Control and User communication planes the include Control links 81-83 and User links 12,13, and 23, see col. 3, lines 38-60);

- a reception level measuring unit configured to measure a reception level of the control signal at the one radio station (= quality of each link is continually assessed, see col. 3, line 61- col. 4, line 19; col. 5, line 6- col. 6, line13; and col. 6, lines 46-59);

- a relay controlling unit configured to receive a relay control signal to which a reception level of the control signal at an other radio station is added (= quality of communication path within a network is determined by having each station in the network monitor and assess the quality of reception of transmissions from each of the other stations; and individual quality assessments are forwarded to a controller, see col. 2, lines 15-26 and col. 7, lines 22-67); and

- an information signal transmission/reception unit configured to relay an information signal, which is different from the control signal, to an other radio station according to a route in which the relay control signal is relayed (= communication of among stations using Control and User communication planes the include Control links

Art Unit: 2617

81-83 and User links 12,13, and 23, see col. 3, lines 38-60; and quality assessments are independent of data content, see 4, line 57- col. 5, line 5), wherein;

when the reception level added to the relay control signal is smaller than the reception level at the one radio station, the relay controlling unit adds the reception level at the one radio station to the received relay control signal, and relays the relay control signal, to which the reception level at the one radio station is added, to other neighboring radio stations (= quality of communication path within a network is determined by having each station in the network monitor and assess the quality of reception of transmissions from each of the other stations; and individual quality assessments are forwarded to a controller, see col. 2, lines 15-26 and col. 7, lines 22-67; and quality link assessment by estimating weak and strong path, see col. 4, lines 20-56; and col. 5, line 60- col. 6, line 30);

a radio station which can transmit the information signal to the radio control station directly, among the plurality of the radio stations (= each station can directly transmit to any other station; and using quality assessment to select alternate relay path col. 3, lines 26-37; col. 6, lines 31-45; and col. 7, lines 22-67), transmits a response relay control signal notifying the route in which the relay control signal is relayed, in response to receiving the relay control signal (= quality of communication path within a network is determined by having each station in the network monitor and assess the quality of reception of transmissions from each of the other stations; and individual quality assessments are forwarded to a controller, see col. 2, lines 15-26 and col. 7,

Art Unit: 2617

lines 22-67; and quality link assessment by estimating weak and strong path, see col. 4, lines 20-56; and col. 5, line 60- col. 6, line 30).

However, **Hulyalkar** explicitly fails to disclose a transmission radio station, which is “a source of the information signal, transmits the information signal” according to the route notified by the response relay control signal.

Cain, which is an analogous art, teaches “a source of the information signal, transmits the information signal” according to the route notified by the response relay control signal (= discovery of routes in an adhoc system; and the transmission of message data from a source node to a destination node via the discovery route, see [0015-16, 0027-28, 0032 and 0045-46]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of **Cain** with the system of Hulyalkar for the benefit of achieving a adhoc communication system that discovers route for message data, and distributes message data along plurality of discovered routes for improved reliability and timeliness (see **Cain**; [0032]).

Regarding claim 11, as recite in claim 30, **Hulyalkar** further discloses that the radio station further comprising: a decision unit configured to decide whether or not communication is directly conducted with the radio control station based on a reception level of the control signal received by the control signal reception unit (see col. 5, lines 6-22 and col. 5, lines 53-65).

Art Unit: 2617

Regarding claim 14, as recite in claim 30, **Hulyalkar** further discloses that the radio station, further comprising: a communication route selector configured to select a radio station satisfying a prescribed condition regarding a communication state if a plurality of response relay control signals indicating different routes respectively are transmitted (= transmission request and the allocation of slot, see col. 3, lines 9-25 and col. 4, lines 1-40; and quality of communication path within a network is determined by having each station in the network monitor and assess the quality of reception of transmissions from each of the other stations; and individual quality assessments are forwarded to a controller, see col. 2, lines 15-26 and col. 7, lines 22-67).

Regarding claim 17, as recite in claim 14, **Hulyalkar** fails to disclose that the radio “an information indicating a number of hops from each radio station to the radio control station is included in the response relay control signal, and the communication route selector selects a radio station based on the number of hops included in the response relay control signal”.

Cain, which is an analogous art, teaches “an information indicating a number of hops from each radio station to the radio control station is included in the response relay control signal, and the communication route selector selects a radio station based on the number of hops included in the response relay control signal” (= route selection base on the number hops from source to destination, see [0008, 0037, 0037 and 0042]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of **Cain** with the system of Hulyalkar for the benefit of achieving a

Art Unit: 2617

adhoc communication system that discovers route for message data, and distributes message data along plurality of discovered routes for improved reliability and timeliness (see **Cain**; [0032]).

Regarding claim 18, as recite in claim 14, **Hulyalkar** further discloses the radio station, wherein an information indicating an interference level is included in the response relay control signal, and the communication route selector selects a radio station based the interference level included in the response relay control signal (see col. 3, lines 9-25 and col. 4, lines 1-40, col. 5, lines 38-65; and col. 6, lines 31-45).

Regarding claim 25, as recite in claim 14, **Hulyalkar** further discloses the radio station, wherein information indicating a required transmission power is included in the response relay control signal (see col. 3, line 44- col. 4, line 56; col. 4, lines col. 5, lines 38-65; and col. 6, lines 31-45); but fails to teach that the communication route selector selects a radio station based on the “required transmission power”.

However **Cain** teaches that “the communication route selector selects a radio station based on the “required transmission power” (see [0004 and 0009]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of **Cain** with the system of Hulyalkar for the benefit of achieving a adhoc communication system that discovers route for message data, and distributes message data along plurality of discovered routes for improved reliability and timeliness (see **Cain**; [0032]).

Art Unit: 2617

Regarding claim 26, as recite in claim 14, **Hulyalkar** further discloses the radio station, wherein the communication route selector is configured to determine the communication route for the information signal which minimizes a total transmission power of radio stations relaying the information signal (see col. 2, lines 7-30; col. 3, line 44- col. 4, line 56; col. 4, lines col. 5, lines 38-65; and col. 6, lines 31-45).

Regarding claim 27, as recite in claim 14, **Hulyalkar** further discloses the radio station wherein the communication route determiner is configured to determine the communication route for the information signal by selecting a radio station having a smallest relative transmission power (see col. 2, lines 7-30; col. 3, line 44- col. 4, line 56; col. 4, lines col. 5, lines 38-65; and col. 6, lines 31-45).

Regarding claim 28, as recite in claim 14, **Hulyalkar** fails mention “minimizing a number of hops in the communication route”.

However, Cain teaches “minimizing a number of hops in the communication route” (= route selection base on the number hops from source to destination, see [0008, 0037, 0037 and 0042]).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of **Cain** with the system of Hulyalkar for the benefit of achieving a adhoc communication system that discovers route for message data, and distributes message data along plurality of discovered routes for improved reliability and timeliness (see **Cain**; [0032]).

Art Unit: 2617

3. **Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hulyalkar in view of Cain and further in view of Palenius (U.S. 6,904,290), (hereinafter, Palenius).**

Regarding claim 12, as recited in claim 11, the combination of **Hulyalkar and Cain** fails to disclose that “the decision unit changes a threshold for the reception level according to a transmission speed of the information signal and decides whether or not communication is directly conducted with the radio control station based on a result of comparison of the reception level and the threshold”.

However, **Palenius** teaches that the decision unit changes a threshold for the reception level according to a transmission speed of the information signal and decides whether or not communication is directly conducted with the radio control station based on a result of comparison of the reception level and the threshold (see col. 1, lines 27-55; col. 3, lines 41-58 and col. 4, lines 32-55).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of **Palenius** with the system of Hulyalkar and Cain for the benefit of achieving a system that manages power offset between channels in a communication system (see col. lines 19-52).

CONCLUSION

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although

Art Unit: 2617

the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. SEE MPEP 2141.02 [R-5] VI. PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS: A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004). >See also MPEP §2123.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of 33the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwasi Karikari whose telephone number is 571-272-8566. The examiner can normally be reached on M-T (9am - 7pm).

Art Unit: 2617

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8566. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kwasi Karikari/
Patent Examiner Art Unit 2617.

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617